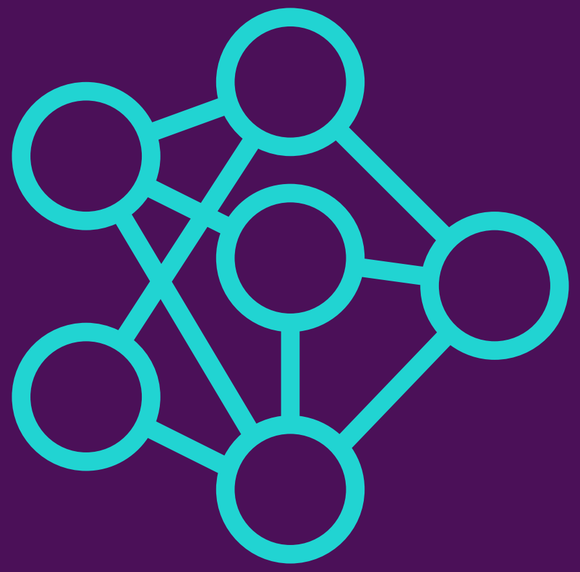

AITEM

ARTIFICIAL INTELLIGENCE SOLUTIONS

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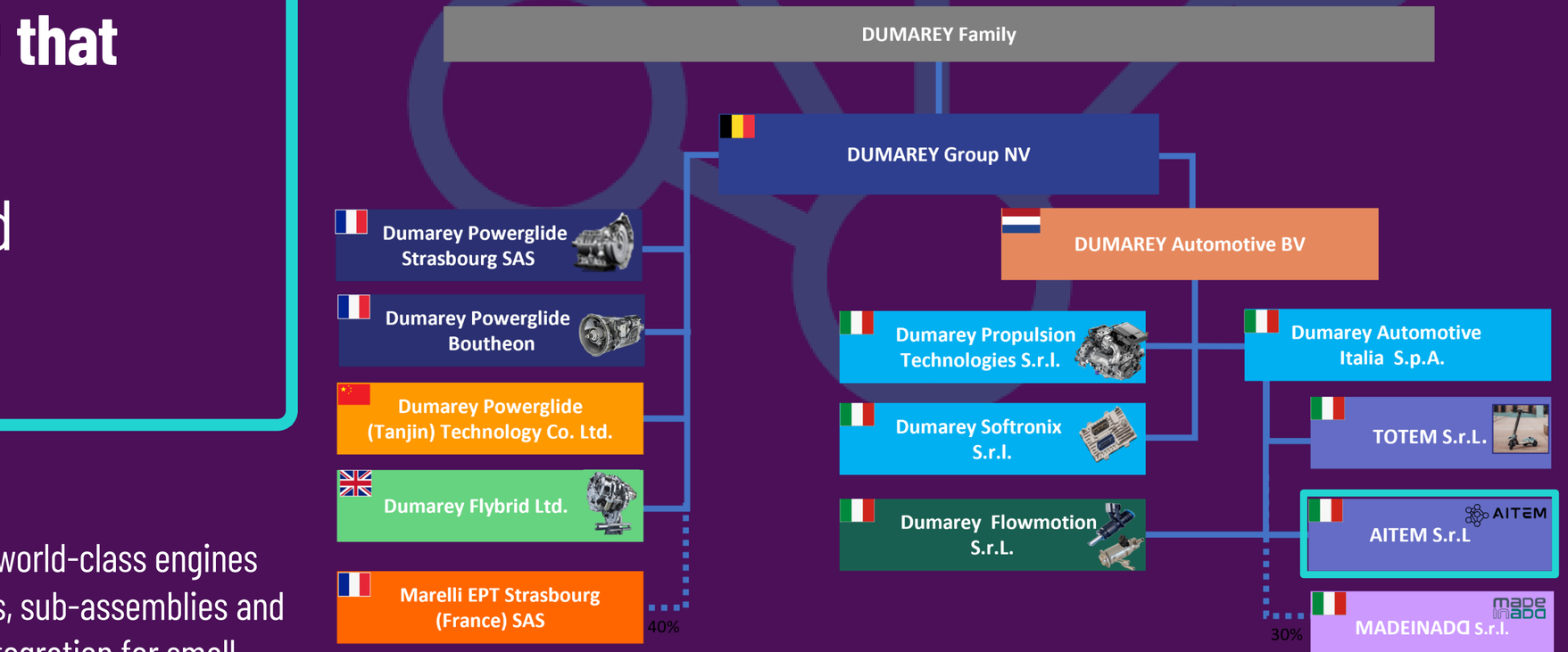
Who's AITEM...?

AITEM is a **DUMAREY Automotive Italia spin-off** born in 2020 **that develops AI software** with cutting-edge technology and innovation.



The Dumarey Group is a developer and provider of world-class engines and transmissions, energy storage, control systems, sub-assemblies and components, with proven capabilities to provide integration for small, medium and large-run applications

DUMAREY

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Our Unique Selling Proposition

We **select** our customers building on **our assets** where we are **better** than competitors

Image Analysis and Computer Vision

Our patent **need 10x less** images/videos **than competitors** to reach 90% accuracy (AITEM developed a camera based collision alert with 0.95% error)

Generative AI and LLM

We are better in specific fields where **we master the discipline** (like manufacturing, industrial processes, automotive) and we leverage our **patented parsing** technology

Deep Learning & Data Analytics

We **managed data** from fleets/plants of a **major car maker**, thus know what is required in production when a failure may cost millions

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Where AITEM can help?

Conducting consultations to understand **customer's problem**

Providing customer with a **tailor-made solution**

Helping the customer to **achieve its goals** in a more efficient and effective way

We have the **speed of startup,** but our team has the **legacy experience** of a multinational, providing customers with truly **production-oriented products.**

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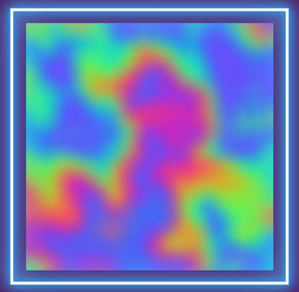
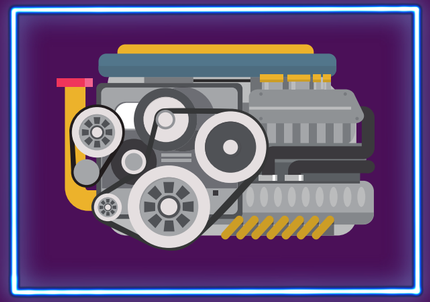
ML and statistical approach

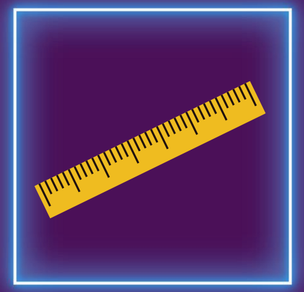
for Defect analysis on steel products



Thermal camera



Casting machine



Dimensional check

AITEM

Data stored for production analysis

Prediction of defected parts

> 40% defected parts identified

> 250k€ per year potential savings

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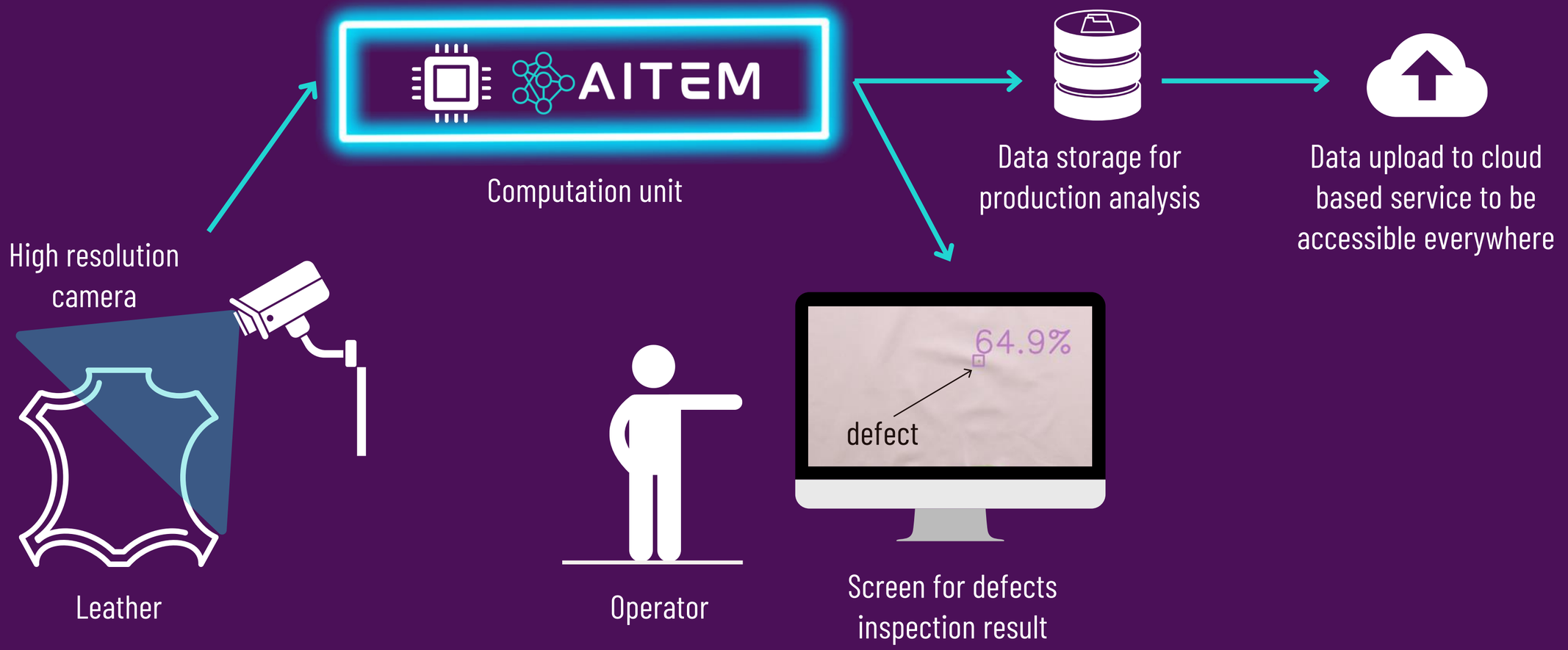
AI image analysis

for Visual inspection of textile and leather products



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Predictive maintenance
in automotive fleets applications

DATA COLLECTION

Collect and monitor assets performance from the field for data analysis and elaboration

DATA ELABORATION

Cloud based solution able to detect current state of health (SoH) and performance of assets using remote measures (IoT) and predict high impacting failures for multiple systems

RESULTS

Reduced downtime, damages, safety risk

Optimized maintenance in automotive applications

80% predicted failures causing service disruption, with <10% error in SoH detection

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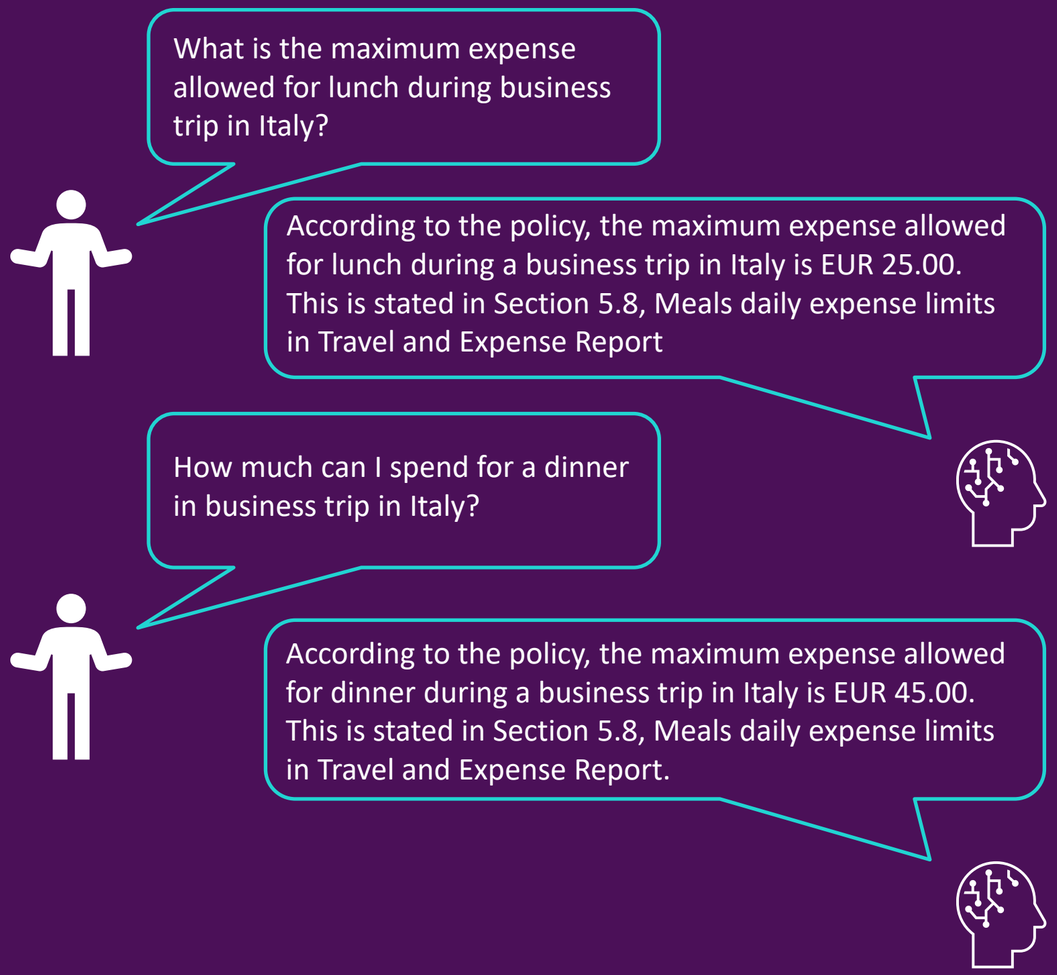
LLM-Enhanced AI Copilot

LLMs use advanced artificial intelligence to understand and respond to questions accurately and quickly.



Benefits

Quick and accurate responses

Ability to process large amounts of information

Improved company productivity

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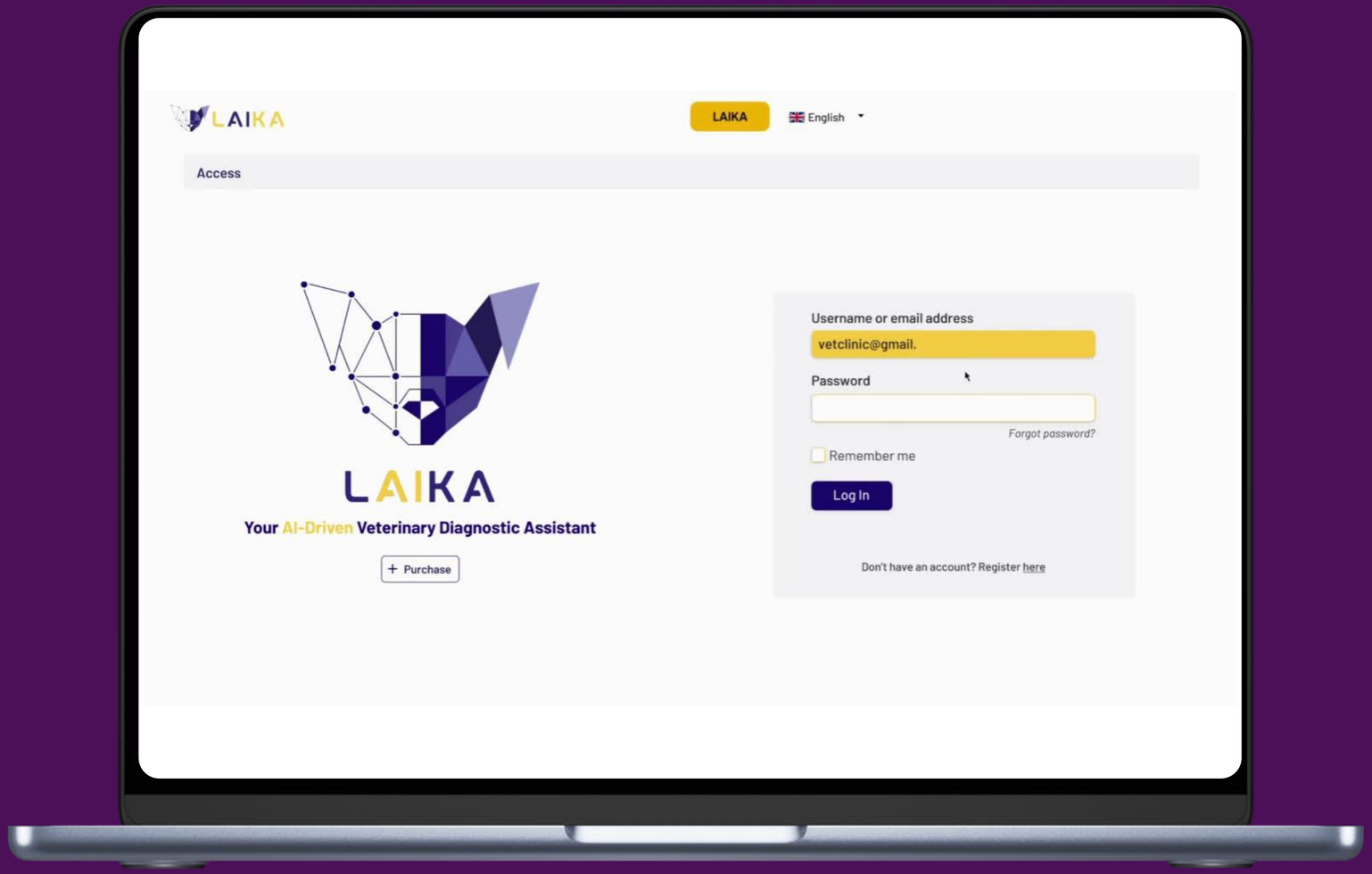
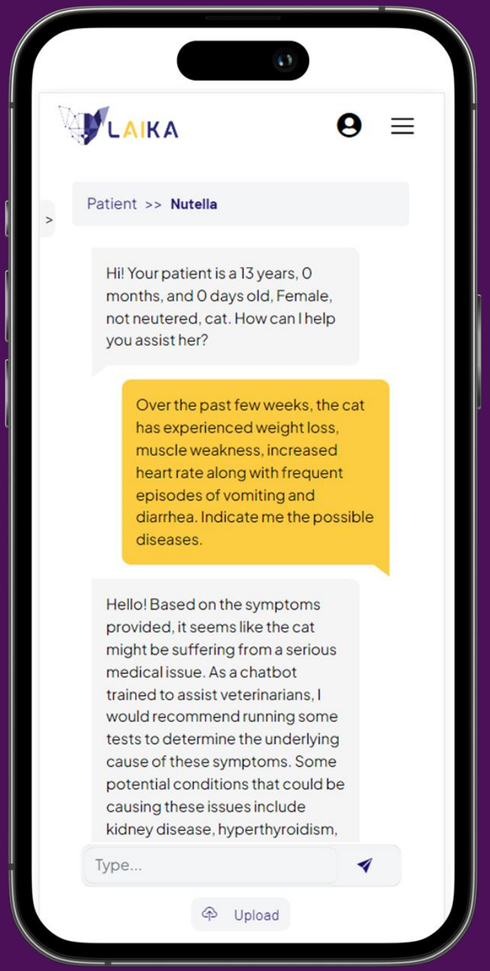
LAIKA

the AI-Driven Veterinary Diagnostic Assistant





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AI-Driven 3D Model Generator

Real Components to 3D | Sketch to 3D | Text to 3D | 2D to 3D

INPUT: Image → **AI Real comp Processing**

INPUT: Sketch → **AI Sketch Processing**

INPUT: Text → **AI Text Processing**

INPUT: 2D → **AI 2D Processing**

CORE — AITEM

Data Treatment & Object Segmentation

↓ Processed & Segmented Images

AI Feature Extraction

↓ Extracted Features

AI 3D Parameter Estimation

↓ Parameters: Height, Width, Depth, Volume

AI-Driven 3D Object Generator

Input Image from mobile

3D model

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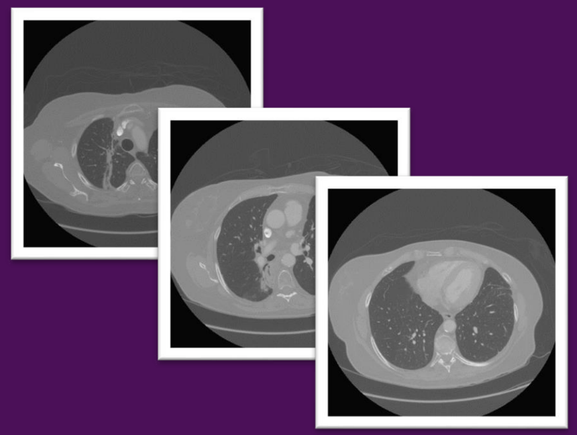
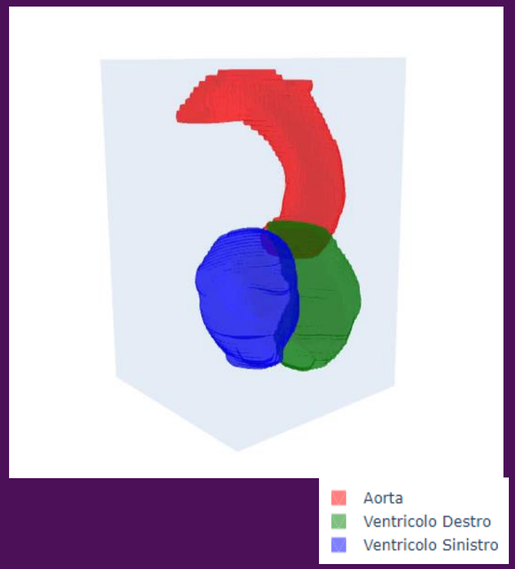
Segment anatomical regions
based on medical imaging





Benefits

Diagnostic improvement

Professional training

Surgical planning

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Predictive Human being modeling

based on physiological monitoring

Focusing on predictive human being modeling based on physiological monitoring forecasting motion sickness, onset sleep, stress monitoring, emergency manager

Development of Human factor technologies to improve Human-Machine Interface and Autonomous Vehicle adoption

Interior sensing technology development and integration

Wellness/Health monitoring

Motion sickness prediction model

Onset sleep detection prediction model

Analytics

Emergency manager (e.g. stroke)

Stress detection

Enhanced comfort

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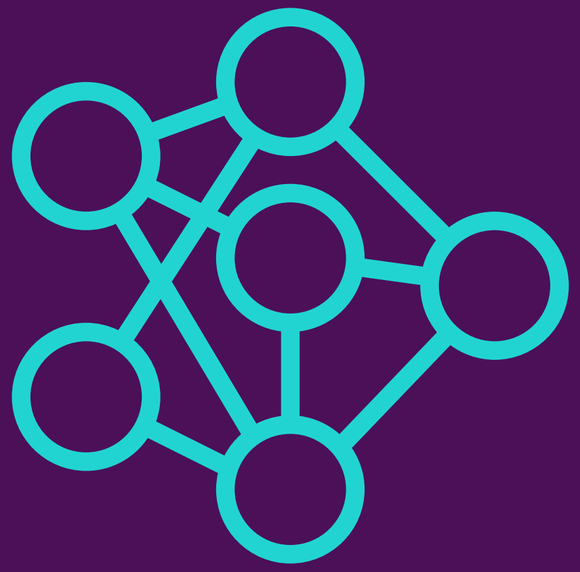

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